CHAPTER V.

INTERMENSTRUAL PAIN.

Definition.—Intermenstrual pain is the name given to a form of suffering characterized by pelvic pain occurring on a fixed date between two menstrual periods, in some cases midway between, and in others on a definite date after the preceding period or before the following one. The Germans give the name "Mittelschmerz" to this affection, but this does not seem an accurate designation, since the pain does not always occur in the middle of the intermenstrual periods. Nor does the term "intermediate dysmenorrhea" appear more appropriate, for the special characteristic of the pain is that it occurs in the interval between the menstrual periods and is, therefore, distinct from dysmenorrhea. The term used by the French, "douleurs intermenstruelles," or its English equivalent, "intermenstrual pain," seems the most exact, as well as the most descriptive name for this affection.

History.—The disorder was first described, so far as I know, by Sir William Priestley in 1872. He then reported four cases, selected, he says, from a number of others (*Brit. Med. Jour.*, 1872, vol. 2, p. 431). Priestley says frankly that, at the time at which he wrote, any opinion as to the nature and causation of the affection was purely conjectural, and the years that have elapsed have contributed little to our knowledge on the subject. Priestley's theory regarding it is based on the fact that shortly before menstruation one or both ovaries become turgescent, an event known to take place, and this turgescence lasts through the menstrual period, continues for a few days after its cessation, and then gradually subsides. In Priestley's opinion it is not unreasonable to suppose that the preparation for an approaching period should take place as much as ten to fourteen days before its occurrence. Under normal conditions this preparation is not accompanied by any appreciable signs; but the presence of abnormal conditions in the ovary, or even of undue excitability where no structural change is apparent, may cause the preparatory stage to be as difficult and painful as the later stages, which are accompanied, in many cases, by painful menstruation.

Since the appearance of Priestley's article cases of intermenstrual pain have been reported from time to time, sometimes accompanied with suggestions as to its etiology. In looking over the literature of the subject I have been surprised to find that although the total number of cases definitely reported is small, most of the formal reports are followed by the mention of other cases occurring in the practice of those present; so that it would seem the affection is by no means so uncommon as it is usually believed to be, and it is possible that if all the cases coming under observation were carefully recorded, some definite conclusions might be reached as to its nature and etiology. I have collected all the cases which I could find in the literature, and after adding fourteen from my own case-books, I have made a careful analysis of the whole number, sixty-four. Space does not permit me to give any detailed account of so large a number here; I must confine myself to a brief statement of the main points brought out by the analysis, adding a few illustrative cases from my own records.

Age.—The age at which intermenstrual pain began was noted in forty-one out of the sixty-four cases. In only three did it begin with first menstruation; in all the others menstruation had been established for some years before it appeared. In ten cases (including the three beginning with first menstruation) the patient was under twenty when the pain began; twenty-nine of the remaining cases were between twenty and thirty-five; while two were over thirty-five. It seems reasonable, therefore, to conclude that intermenstrual pain is an affection belonging to the period of full sexual activity. Besides these forty-one cases, there were twenty-three in which the age of the patient when intermenstrual pain began was not stated, and could not be calculated from the other data. In seven out of the twenty-three, however, the age of the patient when she came under observation was given, six of them being between twenty and thirty-five, while one was forty-eight.

Sterility.—Out of the sixty-four cases, thirty-two had never had children or miscarriages (eleven of them being married and twenty-one single). Thirteen had had neither children nor miscarriages for as much as five years, and in most cases much longer. Fourteen had had children, or miscarriages, or both, within five years; and the condition of five as regards child-bearing was not stated. Or, to put the matter in another form, thirty-two cases were sterile; thirteen relatively sterile; fourteen fertile; and five unknown. These results seem to support the statement made by some persons that intermenstrual pain is associated, in the majority of cases, with sterility.

Relation between Intermenstrual Pain and Child-bearing.—Of the fourteen cases in which the patient had had either children or miscarriages, there were five in which the pain began after the birth of the last child, and three in which it began after a miscarriage. In six cases it was not stated whether the pain began before or after pregnancy. It would seem, therefore, that it is at any rate possible that child-bearing is, in some cases, an exciting cause. In three cases of intermenstrual pain, where pregnancy occurred, the suf-

fering ceased entirely during the pregnancy and during lactation, returning on the reëstablishment of menstruation.

Date of Pain.—The data on this point are not so full as could be wished; in some cases the statement is made that the intermenstrual pain occurred a certain number of days after menstruation, leaving it uncertain whether this means after the beginning or the end. In other instances, where the date is definitely stated to be after the end, the length of the period is not mentioned, and therefore the cases cannot be compared with others where the date is definitely stated from the beginning. The value of the cases reported by Storer (*Boston Med. and Surg. Jour.*, 1900, vol. 142, p. 397), which are by far the largest number given in any one instance, is somewhat depreciated for this reason. There appears to be no doubt, however, that intermenstrual pain occurs always about the middle of the intermenstrual period, and extends into the second half of it. In nine cases the date of the pain was given as "midway" and in two of these, which were in my own practice, the pain was so exactly between the periods that the date of the approaching one could be foretold from the day upon which the intermenstrual pain appeared; that is to say, if the intermenstrual attack occurred on the twelfth day after the beginning of menstruation, the next period would be upon the twenty-fourth day. The following record taken from one of these cases illustrates this point:

Menstruation	December	1		
Intermenstrual pain	"	10	Interval	9 days
Menstruation	"	19	"	9 "
Intermenstrual pain	"	30	"	11 "
Menstruation	January	10	"	11 "
Intermenstrual pain	"	21	"	11 "
Menstruation	February	1	"	11 "
Intermenstrual pain	"	17	"	16 "
Menstruation	March	5	"	16 "

In another case, reported by Sorel (*Arch. de toc. et de gynec.*, 1873, vol. 14, p. 269), a record of this kind was kept, extending over one hundred and forty-seven periods, and although the intermenstrual pain did not occur with the absolute exactness shown in the two cases just mentioned, it varied distinctly according to the date of the menstrual period which was to follow.

Out of seventeen cases in which the intermenstrual pain was dated from the beginning of the preceding menstruation there were only four in which it was stated whether menstruation occurred regularly every twenty-eight days, and in the absence of this information it is impossible to estimate the relation of the pain to the approaching period. Further information as to the date of intermenstrual pain in relation to the following menstrual period is much needed, if definite conclusions on this point are to be drawn. All that can be said at present is that there seems good reason to think that the date of intermenstrual pain is associated with the menstrual period following the pain rather than that preceding it.

Character of Pain.—No special form of pain is present. In some cases it is noted as dull and in about an equal number as sharp; in only a few cases was it paroxysmal.

Duration of Pain.—This varies from a few days up to the whole time between the occurrence of the pain and the appearance of the next menstrual period. In the majority of cases it lasts three to four days.

Period of Time which the Condition May Last.—This also varies. In one case it had existed only a few months when the patient came under observation, while in another it had lasted twenty-two years. There was one case (Sorel, *loc. cit.*) where it began with the first menstruation and ceased only with the menopause. In no case was it self-limited.

Presence and Nature of Discharge.—In thirty-nine cases out of sixty-four a discharge was present. Its character varied greatly, being sometimes a simple leucorrhea, sometimes clear and watery, and sometimes yellowish and irritating. In a few cases it was bloody or blood-stained. Attempts have been made to establish a relation between the intermenstrual pain and an accompanying discharge, but there seems nothing to support such an idea. The fact that in three out of six cases in which the discharge was bloody or blood-stained there was an endometritis, a polyp, or a submucous fibroid, suggests strongly that in cases where a discharge exists it is connected with associated lesions, and not directly associated with the intermenstrual pain.

Menstruation.—Intermenstrual pain does not seem to be in any way associated with dysmenorrhea. In twenty-seven cases menstruation was noted as painful, while in twenty-three it was painless. In the remaining cases this point was not recorded. It was regular in a good many more cases than it was irregular, and such irregularity as occurred was in the line of anticipation. In only one case was it noted as delayed. There was a tendency to excess in fifteen cases, in contrast to four where the flow was scanty. On the whole, however, menstrual variation is a point upon which information is lacking, and special attention to it in future reports is desirable.

Location of Pain.—In a large proportion of cases the intermenstrual pain was situated, roughly speaking, in one or the other ovarian region; in two it was in both ovarian regions at the same time; while in five it was in the right and left regions alternately.

Relation between Pain and Lesions Found on Examination.—The lesions observed in cases of intermenstrual pain are somewhat indefinite in character. In a good many cases nothing which could be considered a lesion was present. In those where lesions or abnormalities existed there was sometimes a relation between its nature and the location of the pain, and sometimes none whatever. For instance, out of twenty-four cases where the pain was situated in the region of the ovary, there were eight in which there was tenderness and thickening of the ovary; one of hematoma of the ovary; one of hydrosalpinx; and one of salpingitis. There were also five cases in which there was tenderness, with or without swelling, in the broad ligament on the side corresponding to the

pain. Of the remaining eight cases in which the pain was situated in the ovarian region, no deviation from normal could be detected on examination. Of eight cases where the pain was situated in the hypogastrium, one was a double salpingitis and another a double salpingo-ovaritis. Of the remaining six cases of hypogastric pain, one was recorded as normal, four were displacements of the uterus, and the remaining case was a large fibroid. Of six cases where the pain was stated to be "in the lower abdomen," there were five displacements, and of the sixth there is no record. In all the remaining cases (thirty-four) the records are too indefinite to be available for use as statistics. So far as they go, then, these results would seem to indicate that intermenstrual pain is not necessarily related to any one location, but rather that the location is determined by the coexisting abnormal conditions.

Treatment and its Results.—The results of treatment in intermenstrual pain, so far, are discouraging. In no case in my collection has it shown itself self-limited, while in one case (Sorel, *loc. cit.*) it lasted throughout the whole menstrual life. Of the various modes of treatment adopted, the results are as follows: Dilatation and curettage was tried in eleven cases, entirely without benefit, except in one instance where the uterus was steamed out after it, and in this case the intermenstrual pain had lasted but a few months. Ovarian, parotid, and thyroid extracts were given in one case without relief, but in another the thyroid alone was followed by complete recovery. Electricity over the ovarian region was tried in four cases, two of which were somewhat improved, while the other two derived no benefit whatever. Removal of one ovary and tube was tried in four cases where the localization of pain in the ovarian region seemed to indicate it. In one instance the pain was relieved for a period of eight years, and in another it has now been absent for six; the other two cases were entirely unbenefited. The appendages were removed on both sides in five cases, two of which were among the cases mentioned where one ovary was first removed without benefit. The results in one instance are not definitely stated, although, judging from the context, they were good; of the other four cases, three were entirely relieved and the other not at all. In the latter instance, however, menstruation continued after the operation and it is to be supposed that some ovarian tissue remained behind. Suspension of the uterus was tried in three cases of retro-displacement, with complete relief in one case, partial relief in another, and none at all in the third.

Partial relief was also obtained in three cases from a course of baths or medicinal waters; in one case from absolute rest in bed during the attacks of pain, with straightening of the uterus, which was in extreme anteflexion; and in one case from the use of a Hodge pessary for extreme anteflexion, together with the relief of a coexisting endometritis.

Complete relief resulted in one case from the use of an intra-uterine pessary for marked anteflexion; in two cases from six months' treatment for endometritis, nature not stated; in one case from the cure of

an eroded cervix; and in one from rest in bed during the attacks, with support of the uterus by tampons.

All that can be determined from these records is that the treatment of coexisting local conditions will sometimes relieve intermenstrual pain. It should always be tried, together with attention to general health and absolute rest in bed during the attacks of pain. In regard to the effect of the removal of one ovary and tube, the results are too scanty to warrant an opinion. Removal of both appendages can probably be depended upon to give relief as a last resort, provided the pelvis is not so matted with adhesions as to make complete removal impossible. It would be interesting to know the effect of inducing the cessation of menstruation by removing the uterus without disturbing the ovaries.

I give here three illustrative cases from my own records:

Case I.—Mrs. J., age thirty, November 13, 1894, Case-book V, No. 113. This patient had had three children, the youngest of whom was six years old at the time she consulted me. At the birth of her second child, eight years before, the perineum was badly torn, and it was repaired some little time later. The second menstrual period after the operation was followed by the intermenstrual pain, which had occurred regularly since then. It appeared exactly between each two menstrual periods, so much so that if it occurred on the thirteenth day from the beginning of menstruation, the following menstrual period was on the twenty-sixth. The pain was situated in the lower abdomen and lasted from six to twelve hours. Menstruation was regular, painless, and somewhat free. Just before the intermenstrual pain began, there was a yellowish discharge from the vagina, which lasted until the pain was over. On examination of the pelvic organs the uterus was found anteflexed and the outlet torn through the sphincter. The ovaries and tubes were free from disease. The outlet was repaired at the Johns Hopkins Hospital, and in April, 1907, when the patient was last heard from, she was still suffering from the attacks of intermenstrual pain, although for the last three or four years they have been much less severe than formerly. Her general health is much improved.

Case II.—Miss W., age thirty-nine, October, 1897, San. No. 512. This patient began to have intermenstrual pain when she was eighteen years old, four years after menstruation began. The pain occurred on the fourteenth day after the beginning of menstruation. It was situated in the right ovarian region and was dull in character, with a sense of weight. Menstruation was comparatively painless, a little frequent, but not excessive. There was a constant leucorrhea, which was increased with the intermenstrual attacks. On examination the uterus was found sharply retroflexed. Suspension of this was followed by rapid recovery with entire relief of intermenstrual pain and great improvement of general condition. The patient is now (1907) in excellent health.

Case III.—Miss L., age thirty-nine, February, 1900, San. Nos. 929 and

1,226. Intermenstrual pain began a year before she consulted me. The first attack was accompanied by a rise of temperature to 102° F. After the second attack the pain in the pelvis became habitual, with exacerbations at the intermenstrual periods. The pain was situated on the right side of the pelvis with a focus of greatest intensity over the region of the right ovary. There were occasional paroxysms of extreme pain in the rectum, extending up through the right side of the pelvis. Each intermenstrual attack was accompanied by headache, nausea, and nervous exhaustion, and also by a yellowish irritating discharge from the vagina, which was sometimes blood-stained. Menstruation was painful, and after the habitual pain set in became profuse and frequent. Examination showed a small fibroid uterus and considerable tenderness over the base of the right broad ligament, exactly corresponding to the focus of the pain. Dilatation and curettage relieved the menorrhagia, but not the intermenstrual pain. The various gland extracts were tried without benefit; nor was there any relief from electricity or vesication over the right ovarian region. The patient's health became much affected from the incessant pain; she lost nearly thirty pounds and had a haggard appearance. About eighteen months after she was first seen the right ovary and tube were removed. Nothing abnormal was found on opening the abdomen, and the appendages, except that they were swollen and congested, presented nothing abnormal. Relief from pain was immediate and the patient's general health was completely reëstablished.

In concluding the consideration of this subject I may say that a study of these cases leads me to form an opinion substantially in agreement with that of Priestley, namely, that intermenstrual pain is definitely associated with the physiological changes in the ovary which result and end in ovulation. This view, of course, makes intermenstrual pain depend upon the menstrual period which follows, rather than upon that which precedes it, although it is usually associated with the latter in recorded cases. But the fact that the cases in regard to which I have fullest data all show a definite connection with the succeeding menstruation is one reason for my opinion.

Moreover, the other opinions expressed as to the cause of intermenstrual pain do not seem to be tenable. For instance, it has been claimed that it is purely a nervous manifestation; but if this were the case, the removal of both appendages would in all probability be followed by nervous manifestations in some other region of the body, in other words, by a change of neurosis, whereas it gives complete relief. Furthermore, the fact that the absence of ovulation during pregnancy and lactation is accompanied by a cessation of intermenstrual pain supports the view that the ovaries are directly concerned in it. It has been suggested that intermenstrual pain is associated with fibroid tumors, and one observer claims that he has observed a swelling of fibroids during an attack of pain; but out of the sixty-four cases just considered there were only six of fibroid tumors. Croom (*Edin. Med. Jour.*, 1896, vol. 1, p. 703) agrees with Priestley in associating intermenstrual pain with ovulation,

but whereas Priestley connects it with the process of preparation for approaching ovulation accompanied by menstruation, Croom believes that ovulation takes place at the time of intermenstrual pain, independent of menstruation. It is difficult to see, in this case, why the date of intermenstrual pain should vary in accordance with the menstrual period following it; moreover, it is hardly possible that ovulation would take place regularly between two menstrual periods for a number of years, and even through the whole of sexual activity.

Everything, in fact, which is known in regard to intermenstrual pain, thus far, seems to support the theory which associates it with approaching ovulation, taking place under difficulties which are, as yet, imperfectly understood. Should Fränkel's theory as to the relation between the corpus luteum and menstruation prove correct, some light may be incidentally thrown upon the etiology of intermenstrual suffering.

Further knowledge of the subject must depend upon information furnished by a large number of records, and it is greatly to be wished that all cases of intermenstrual pain should be carefully observed and duly reported. I am convinced that such cases are much more numerous than they are supposed to be.

The points which should be noted are: (1) Age of patient; (2) married or single; (3) children or miscarriages; (4) date at which intermenstrual pain occurs, with special reference to following menstrual period; (5) length of time pain has lasted; (6) location of pain; (7) duration of pain; (8) character of pain; (9) age at which pain began; (10) condition of menstruation as regards pain, regularity, and amount; (11) presence and nature of vaginal discharge; (12) results of pelvic examination or of abdominal section; (13) treatment and its effect.